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A BRIEF BIBLIOGRAPHY OF STATISTICAL CLASSIFICATION PROCEDURES: DECISION-THEORETIC APPROACH \*

by
Lii-Yuh Leu
Purdue University and National Central University
Technical Report #89-15

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# A BRIEF BIBLIOGRAPHY OF STATISTICAL CLASSIFICATION PROCEDURES: DECISION-THEORETIC APPROACH

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#### Purdue University and National Central University

- Aitchison, J., Habhema, J.D.F. and Kay, J.W. (1977). A critical comparison of two methods of statistical discrimination. Appl. Statist. 26, 15-25.
- Albrecht, V. (1984). On the convergence rate of probability of error in Bayesian discrimination between two Gaussian processes. Asymp. Stat. 2, 165-175.
- Anderson, T.W. (1951). Classification by multivariate Analysis. Psychometrika 16, 31-50.
- Anderson, T.W. (1964). On Bayes procedures for a problem with choice of observations.

  Ann. Math. Statist. 35, 1128-1135.
- Bai Zhidong (1985). Approximate Bayes discrimination. Acta. Math. Sinica 28, 522-529.
- Bandyopadhyay, S. (1983). Admissibility of likelihood ratio rules in covariate classification using dependent samples. Austral. J. Statist. 25, 482-486.
- Banerjee, K.S. and Marcus, L.F. (1965). Bounds in a minimax classification procedure. *Biometrika* 52, 653-654.
- Bernardo, J.M. and Bermudez, J.D. (1985). The choice of variables in probabilistic classification with discussion. Bayesian Statistics 2, 67-82.
- Binder, D.A. (1978). Bayesian cluster analysis. Biometrika 65, 31-38.
- Binder, D.A. (1981). Approximations to Bayesian clustering rules. *Biometrika* 68, 275-285.
- Birnbaum, Allan and Maxwell, A.E. (1960). Classification procedures based on Bayes' formula. Appl. Statist. 9, 152-169.
- Blattberg, R.C. and Sen, S.K. (1975). A Bayesian technique to discriminate between stochastic models of brand choice. *Manag. Sci.* 21, 682-696.
- Borowiak, D. (1983). A multiple model discrimination procedure. Commun. Statist. Theor. Meth. 12, 2911-2921.
- Boscaiu, V. (1985). On a general classification problem. Proc. 7th Conf. Prob. Theory. Brasov, 649-653.
- Browdy, B.L. and Chang, P.C. (1982). Bayes procedures for the classification of multiple polynomial trends with dependent residuals. J. Amer. Stat. Ass. 77, 483-487.
- Cacoullos, T. (1965). Comparing Mahalanobis distances I: comparing distances between k known normal populations and another unknown. Sankhyā A 27, 1-22.

- Cacoullos, T. (1965). Comparing Mahalanobis distances II: Bayes procedures when the mean vectors are unknown. Sankhyā A 27, 23-32.
- Cacoullos, T. (1966). On a class of admissible partitions. Ann. Math. Statist. 37, 189-195.
- Choi, Keewhan (1969). Empirical Bayes procedures for (pattern) classification with stochastic learning. Ann. Inst. Statist. Math. Tokyo 21, 117-125.
- DasGupta, S. (1973). Theories and methods in classification: a review. Discriminant Analysis and Applications. T. Cacoullos, ed. Academic Press, 77-137.
- DeRouen, T.A. and Sarma, Y.R. (1975). G<sub>1</sub>-minimax procedures for the case of prior distributions in discriminant analysis. *Biometrika* 62, 403-406.
- Dunsmore, I.R. (1966). A Bayesian approach to classification. J. Roy. Statist. Soc. B 28, 568-577.
- Dutter, R. (1979). On estimation in the linear model when spurious observations are present A Bayesian approach. Commun. Statist. Theor. Meth. A8, 611-636.
- Enis, P. and Geisser, S. (1974). Optimal predictive linear discriminants. Ann. Statist. 2, 403-410.
- Fukunaga, K. and Krile, T.F. (1969). Calculation of Bayes recognition error for two multivariate Caussian distributions. *IEEE Trans. Computers* C-18, 220-229.
- Geisser, S. (1982). Bayesian discrimination. Handbook of Statistics 2, 101-120.
- Greblicki, W. (1978). Asymptotically optimal pattern recognition procedures with density estimates. *IEEE Trans. Inf. Theory IT* 24, 250-251.
- Gupta, S.S. and Huang, D.Y. (1975). On  $\Gamma$ -minimax Classification procedures. Proceedings of the 40th session of the International Statistical Institute, Warsaw, 330-335.
- Guseman, Jr. L.F., Peters, Jr. B. and Walker, H.F. (1975). On minimizing the probability of misclassification for linear feature selection. *Ann. Statist.* 3, 661–668.
- Hora, S.C. (1976). Bayesian linear discriminant analysis with informative prior distributions. Amer. Statist. Ass. Proceedings of Business and Economic Statistics Section 348-351.
- Hora, S.C. (1977). Bayesian quadratic discriminant analysis. ASA. Pro. Bu. Ec. 266-268.
- Hora, S.C. (1978). Sample size determination in Bayesian discriminant analysis. J. Amer. Statist. Ass. 73, 569-572.
- Hudimoto, Hirosi (1968). On the empirical Bayes procedure (1). Ann. Inst. Statist. Math. Tokyo 20, 169-185.
- Hudimoto, H. (1976). On the empirical Bayes approach to classification problems. Essays in Probability and Statistics, 697-707.

- Johns, Milton V. Jr. (1961). An empirical Bayes approach to non-parametric two-way classification. Stud. Item. Anal. predict (ed. Solomon), 221-232.
- Kashyap, R.C. (1978). Optimal feature selection and decision rules in classification problems with time series. *IEEE Trans. Inf. Theory* IT24, 281-288.
- Kelley, R.P. (1985). Bayesian adjustment of the matching discriminant function. ASA. Pro. St. Cp. 220-222.
- Kokolakis, G.E. (1981). On the expected probability of correct classification. *Biometrika* 68, 477-483.
- Krzysko, M. (1984). On some asymptotic properties of the discriminant function. Asympt. Statist. 2, 317-323.
- Lee, J. C-S (1975). A note on equal-mean discrimination. Commun. Statist. A4, 251-254.
- Logan, T.P. (1987). Bayesian discrimination using multiple observations. Pr. Cmp. Sc. St. 19, 395-399.
- Marron, J.S. (1983). Optimal rates of convergence to Bayes risk in nonparametric discrimination. Ann. Statist. 11, 1142-1155.
- Menzefricke, U. (1981). Bayesian clustering of data sets. Commun. Statist. Theor. Meth. A10, 65-77.
- Menzefricke, U. (1981). A decision-theoretic approach to variable selection on discriminant analysis. Commun. Statist. Theor. Meth. A10, 669-686.
- Mobachlan, G.J. (1977). The bias of sample based posterior probabilities. Biom. J. 19, 421-426.
- Ness, J.V. (1980). On the dominance of non-parametric Bayes rule discriminant algorithms in high dimensions. *Pattern. RC.* 12, 355-368.
- Rolph, Williams and Lee (1978). Empirical Bayes and least squares discriminant estimators. ASA. Pro. So. St. 89-98.
- Rueschendorf, C. (1984). On the minimum discrimination information theorem. St. & Dec. Supp. Issue 1, 263-283.
- Schaefer, R.E. (1977). Bayes' theorem as a diagnostic classification instrument. Ar. Psych. 129, 302-318.
- Schervish, M.J. (1984). Linear discrimination for three known normal populations. J. Statist. Planning Infer. 10, 167-175.
- Schwemer, G.T. and Dun, Olive, J. (1980). Posterior probability estimators in classification simulations. Commun. Statist. Simul. Comp. B9, 133-140.
- Srivastava, J.N. and Zaatar, M.K. (1972). On the maximum likelihood classification rule and its admissibility. J. Mult. Anal. 2, 115-126.

- Tsokos, C.P. and Welch, L.W. (1979). Lack of robustness of the Bayes optimal discriminant procedure with 0-1 loss. Ap. Ma. & Cmp. 5, 131-148.
- Wingnall, T.K. (1969). Generalized Bayesian classification functions: k classes. Econ. Geol. 64, 571-574.
- Wojciechowski, T. (1985). The empirical Bayes classification rule for mixtures of discrete and continuous variable. *Biometric J.* 27, 521-532.
- Zhezhel, Y.N. (1974). Minimal essentially complete class of discrimination rules for unknown moments of higher orders. The 74th Prob. Application 19, 801.

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